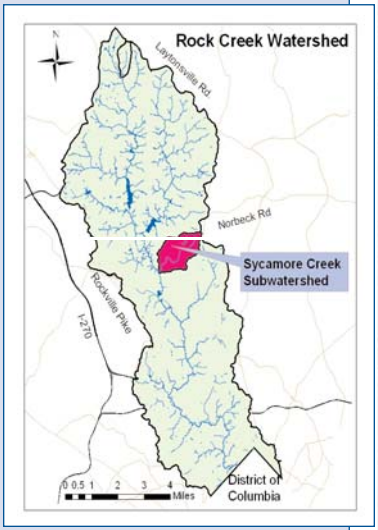
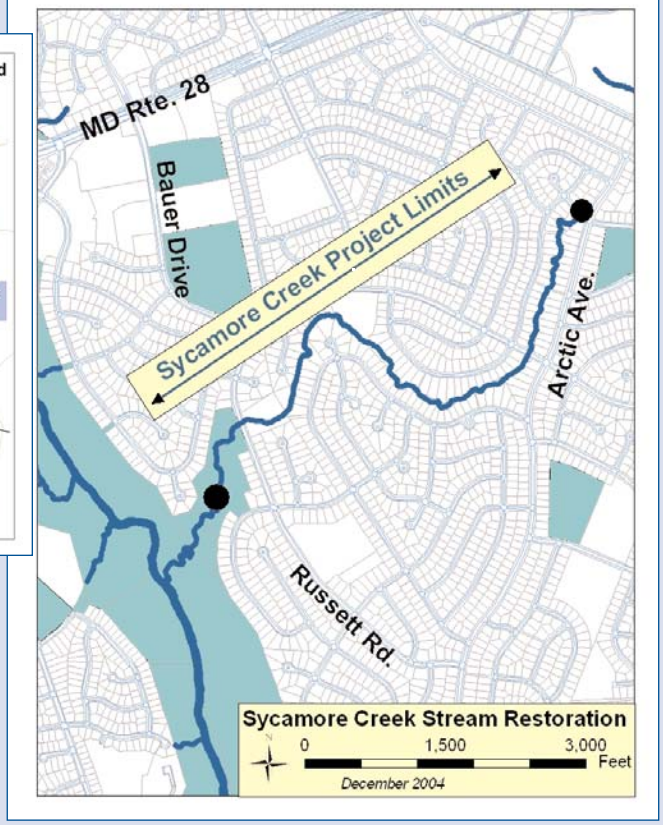
Watershed Restoration FACTSHEET:

Sycamore Creek Project



The Rock Creek Watershed, a tributary of the Potomac RIver, includes a drainage area of 60 square miles. Rock Creek flows 21 miles through central Montgomery County, east of I-270, then continues into the District of Columbia.



Sycamore Creek Subwatershed Facts:
Subwatershed Drainage Area: 992 acres, 1.6 square miles
Subwatershed Imperviousness: 22%
Property Ownership: Private and Maryland-National Capital Park and Planning Commission

Restoration Goals:
To stabilize eroding stream banks, re-establish a riparian buffer, protect sewer lines, improve fish passage, improve aquatic habitat conditions, and construct two shallow wetlands.

Stream Restoration Project Facts:
Project Length: 6,400 feet
Estimated Costs: Structural ($500,000); Reforestation ($74,000)
Funded in part through the Federal Highway Administration TEA-21 Enhancement Program, administered by the Maryland State Highway Administration
Project Completion Date: December 2004

Stream Monitoring Facts:
Pre- and Post Restoration Monitoring, following DEP Monitoring Protocols, will continue for five years post-construction.

For technical and professional specifications (coming soon), visit askdep.com

Project Selection

Montgomery County has a continuing commitment to protect and improve its water resources. *The Countywide Stream Protection Strategy, (*CSPS,1998, updated 2003*),* published by the Department of Environmental Protection (DEP), evaluated biological, chemical, and habitat conditions of streams in the county, and identified impaired "priority" subwatersheds for restoration, including the Sycamore Creek subwatershed.

Following the *CSPS*, *The Rock Creek Watershed Feasibility Study (April 2001)* evaluated more than 14 miles of Rock Creek and its tributaries to identify specific stream restoration and stormwater management opportunities. The *Study* identified 23 priority stream restoration sites, including the Sycamore Creek tributary of Rock Creek.

The Rock Creek Watershed Restoration Action Plan summarizes the results of the Feasibility Study, and is available on the DEP website, **askdep.com** or by contacting DEP at 240.777.7712.

Pre-Restoration Conditions

Much of the lower Rock Creek Watershed, including the Sycamore Creek subwatershed, was developed prior to regulations requiring stormwater management control and contains a high percentage of impervious surface.

Uncontrolled stormwater runoff from highly impervious areas creates erosive, high velocity or "flashy" stormwater flows that cause damage to receiving streams.

The Rock Creek Watershed Feasibility Study identified several impaired condtions in Sycamore Creek. Uncontrolled stormwater created severe stream bank erosion and unstable banks, undercut trees, and damaged private property. Undercut trees fell into the stream and created debris jams that blocked the stream and caused further bank erosion.

Over time, the stream channel down-cut and became overwidened, which limited

stream flow access to the original floodplain, exposed sewer lines to potential damage, and destroyed habitat necessary for diverse aquatic life. Sediment from eroded banks and road grit accumulated in the stream, further degrading stream habitat conditions.

The lower end of the project area, located on parkland, had better conditions, with numerous vernal pools, and a riparian buffer providing habitat and shade to help reduce stream water temperatures.

Restoration Actions

The Sycamore Creek Project used construction restoration techniques and reforestation to help stabilize stream banks and enhance riparian habitat.

Newly built instream structures included rock and log vanes, which direct water away from unstable stream banks, and form down stream scour pools, providing good habitat for fish. Rock cross vanes also function as grade control, which slow the erosive process of stream down-cutting.

Pre-restoration conditions included severely eroded stream banks, undercut trees, and limited habitat features

Imbricated rock wall protects the toe of a steep slope. A constructed terrace on top of the wall provides an area for additional plantings

Boulder rock stabilizes the toe of a stream bank slope. Native riparian trees and shrubs planted above the rock provide long-term stream bank stability.

Shallow wetlands constructed to treat stormwater runoff quality also created valuable habitat for aquatic plants, insects and animals.

Root wad revetments are instream structures added to help stabilize stream banks, and create scour holes, and overhead cover for fish.

Boulder rock installed at the toe of stream bank slopes stabilized the area of the stream channel subject to the greatest erosive, or "shear", stress. The slopes above the reinforced toes were graded back to create new floodplain terraces, and planted with native trees and shrubs to further stabilize the stream banks.

The project attempted to save undercut trees with supportive "rock packing." More seriously damaged trees were cut flush with the stream bank, allowing the root systems to remain in the bank for stabilization.

More than 1700 native trees and shrubs were planted along the project length to enhance the riparian buffer.

Two shallow wetlands were created to treat water quality of stormwater discharges from two local storm drains. These wetlands quickly establish balanced aquatic communities, which add additional aesthetic and habitat benefits, including natural mosquito control.

December 2004

follow web link for more information see online glossary **www.askdep.com/watershed_glossary.htm**

For more information:

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